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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/806,825

03/22/2004

John D. Bass

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TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER

MCDONOUGH, JAMES E

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

09/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/806,825	Applicant(s) BASS ET AL.	
	Examiner JAMES E. MCDONOUGH	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-17,19-48 and 50-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5-17, 19-48, 50-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3, 5-17, 19-33, 43, 45-48, and 50-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz and Davis, Nature, vol. 403, 20 January 2000, pp. 286-289 (hereafter referred to as Katz) in view of Ki et al., J. Am. Chem. Soc., vol. 124, 2002, pp. 14838-14839 (hereafter referred to as Ki) and further in view of Dai et al., USP 6,251,280 (hereafter referred to as Dai II).

Regarding claims 1, 3, 5-9, 17, 19-33, 43, 45-48 and 50-55

Katz discloses the invention as claimed (figure 1; p. 289 "Procedures for imprint cleavage") except for the use of chemical instead thermal of deprotection, however, because Ki teaches how to thermally deprotect imprinted groups from silica, and one

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skilled in the art would appreciate that thermal deprotection can be done at a lower cost (from use of less reagents) than can be done chemical deprotection with less chemical waste generated in the process, and since this can be used to obtain predictable results, it would have been prima facie obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Katz, by substituting thermal for chemical deprotection, as suggested by Ki, to produce the product at a lower cost with less waste materials generated, while achieving predictable results.

Katz lacks explicit disclosure that a mixture of different ligands may be used to imprint the inorganic oxide. However, Dai II teaches that a variety of such ligands such as amines, thiols, carboxylic acids, sulfonic acids and phosphonic acids may be used for this purpose (col. 9, 1. 27 to col. 10, 1. 8).

It would have been obvious to one of ordinary skill in the art to apply the teaching of Dai II to the disclosure of Katz with a reasonable expectation of obtaining a highly-useful method of making an imprinted inorganic oxide material and the material itself with the expected benefit of the material having more than one species of binding surface.

Regarding claims 10-16

Katz lacks explicit disclosure that the inorganic oxide may have a planar surface or that the thermolysis may occur at higher temperatures. However, it is conventional in the art to have planar inorganic oxide surfaces, and it would have been well within the skill of the routineer in the art to perform the thermolysis step at an elevated temperature. It would have been obvious to one of ordinary skill in the art to apply that

skill to the disclosure of Katz with a reasonable expectation of obtaining a highly-useful method of making an inorganic oxide imprinted with functional groups and the oxide itself with the expected benefit of the oxide being processable at a range of temperatures depending on the temperature required to cleave the linking group.

Claims 34-42, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz and Davis, *Nature*, vol. 403, 20 January 2000, pp. 286-289 (hereafter referred to as Katz) in view of Ki et al., *J. Am. Chem. Soc.*, vol. 124, 2002, pp. 14838-14839 (hereafter referred to as Ki) in further view of Dai et al., USP 6,251,280 (hereafter referred to as Dai II) as applied to claims 1-17, 19-33, 43, 45-48, and 50-55 above, and further in view of Wulff, *Chemical Reviews*, vol. 102, number 1, Jan 2002 (hereafter referred to as Wulff).

The reference of Katz and Davis teaches the use of multiple functional moieties per imprint up to three, but none of the references disclose the use of more than three, however, because Wulff teaches synthetic polymers (silica) having up to four moieties per imprint (scheme 1, figure D), and one skilled in the art would appreciate that the number and type of moiety to be imprinted can be adjusted to achieve specific characteristics of the final product, it would have been *prima facie* obvious to someone of ordinary skill in the art at the time of invention to modify the primary references to include four moieties per imprint, to change the properties of the imprinted site in a predictable way, to increase its specificity for certain guest molecules.

Response to Arguments

Applicants argue against the 112 rejections.

Applicant's arguments are found persuasive and therefore the 112 rejections have been withdrawn.

Applicants argue against the rejection over Katz and Davis in view of Ki.

Applicants argue that Katz does not teach thermal deprotection. This is true however, it is noted that the rejection is a combination and Ki was used to show thermal deprotection.

Applicants argue against the reference of Ki individually. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicants argue against the rejection over Katz and Davis in view of Ki further view of Dai II.

Applicants argue that the examiner is "TOTALLY WRONG" in his assertion that Dai II teaches imprinting with two different functional groups. This is not persuasive and applicants are kindly requested to reread the reference especially the cited part where Dai II clearly teaches Preferred functional groups on bifunctional ligands for the development of imprint coating precursors are amines, thiols, carboxylic acids, sulfonic

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acids and phosphonic acids (column 9, lines 48-54) and further the reference teaches ligands that have more than one functional group in the preceding paragraph. Are applicants suggesting that a bifunctional group does not have more than one functional group?

Applicants argue against the rejections in further view of Wulff.

Applicants argue that an objective of Wulff is to show multiple imprints, but none contain more than 3 groups imprinted, and further argue that scheme 1, D is not an imprinted molecule but a diagram of a naturally occurring enzyme. Examiner respectfully submit that applicants are mistaken in their interpretation of scheme 1, D, as the silica particle (molecule) in the center of the enzyme is certainly not its natural state.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES E. MCDONOUGH whose telephone number is (571)272-6398. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael A Marcheschi/
Primary Examiner, Art Unit 1793

JEM 9/21/2008